RAW SEQUENCE LISTING   DATE: 09/17/2004
PATENT APPLICATION: **US/08/957,709A**   TIME: 16:04:58

Input Set : **A:\116-01.txt**
Output Set: **N:\CRF4\09172004\H957709A.raw**

```
 3 <110> APPLICANT: Holly, Hogrefe
 4        Connie, Hansen J
 6 <120> TITLE OF INVENTION: Polymerase Enhancing Factor (PEF) extracts, PEF protein
 7        complexes, isolated PEF protien, and methods for purifying and
 8        identifying them
10 <130> FILE REFERENCE: 04121.0116-01000
12 <140> CURRENT APPLICATION NUMBER: 08/957,709A
13 <141> CURRENT FILING DATE: 1997-10-24
15 <150> PRIOR APPLICATION NUMBER: 08/822,774
16 <151> PRIOR FILING DATE: 1997-03-21
18 <160> NUMBER OF SEQ ID NOS: 104
20 <170> SOFTWARE: PatentIn version 3.3
22 <210> SEQ ID NO: 1
23 <211> LENGTH: 15
24 <212> TYPE: PRT
25 <213> ORGANISM: Pyrococcus furiosus
28 <220> FEATURE:
29 <221> NAME/KEY: misc_feature
30 <222> LOCATION: (1)..(2)
31 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
33 <220> FEATURE:
34 <221> NAME/KEY: misc_feature
35 <222> LOCATION: (13)..(15)
36 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
38 <400> SEQUENCE: 1
40 Xaa Xaa Leu His His Val Lys Leu Ile Tyr Ala Thr Xaa Xaa Xaa
41 1               5                   10                  15
44 <210> SEQ ID NO: 2
45 <211> LENGTH: 15
46 <212> TYPE: PRT
47 <213> ORGANISM: Pyrococcus furiosus
50 <220> FEATURE:
51 <221> NAME/KEY: misc_feature
52 <222> LOCATION: (1)..(3)
53 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
55 <220> FEATURE:
56 <221> NAME/KEY: misc_feature
57 <222> LOCATION: (7)..(8)
58 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
60 <220> FEATURE:
61 <221> NAME/KEY: misc_feature
62 <222> LOCATION: (10)..(10)
63 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
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W--> (line 40)

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     65 <220> FEATURE:
     66 <221> NAME/KEY: misc_feature
     67 <222> LOCATION: (12)..(12)
     68 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
     70 <220> FEATURE:
     71 <221> NAME/KEY: misc_feature
     72 <222> LOCATION: (14)..(15)
     73 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
     75 <400> SEQUENCE: 2
W--> 77 Xaa Xaa Xaa Pro Asp Trp Xaa Xaa Arg Xaa Glu Xaa Leu Xaa Xaa
     78 1               5                   10                  15          .
     81 <210> SEQ ID NO: 3
     82 <211> LENGTH: 35
     83 <212> TYPE: PRT
     84 <213> ORGANISM: Pyrococcus furiosus
     87 <220> FEATURE:
     88 <221> NAME/KEY: misc_feature
     89 <222> LOCATION: (1)..(1)
     90 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
     92 <220> FEATURE:
     93 <221> NAME/KEY: misc_feature
     94 <222> LOCATION: (14)..(14)
     95 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
     97 <220> FEATURE:
     98 <221> NAME/KEY: misc_feature
     99 <222> LOCATION: (16)..(16)
    100 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
    102 <220> FEATURE:
    103 <221> NAME/KEY: misc_feature
    104 <222> LOCATION: (21)..(21)
    105 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
    107 <220> FEATURE:
    108 <221> NAME/KEY: misc_feature
    109 <222> LOCATION: (29)..(30)
    110 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
    112 <220> FEATURE:
    113 <221> NAME/KEY: misc_feature
    114 <222> LOCATION: (32)..(35)
    115 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
    117 <400> SEQUENCE: 3
W--> 119 Xaa Leu Leu His His Val Lys Leu Ile Tyr Ala Thr Lys Xaa Arg Xaa
    120 1               5                   10                  15
    123 Leu Val Gly Lys Xaa Ile Val Leu Ala Ile Pro Gly Xaa Xaa Ala Xaa
    124             20              25              30
    127 Xaa Xaa Xaa
    128             35
    131 <210> SEQ ID NO: 4
    132 <211> LENGTH: 18
    133 <212> TYPE: PRT
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Input Set : A:\116-01.txt
Output Set: N:\CRF4\09172004\H957709A.raw

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134 <213> ORGANISM: Pyrococcus furiosus
137 <220> FEATURE:
138 <221> NAME/KEY: misc_feature
139 <222> LOCATION: (1)..(3)
140 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
142 <220> FEATURE:
143 <221> NAME/KEY: misc_feature
144 <222> LOCATION: (7)..(8)
145 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
147 <220> FEATURE:
148 <221> NAME/KEY: misc_feature
149 <222> LOCATION: (10)..(10)
150 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
152 <220> FEATURE:
153 <221> NAME/KEY: misc_feature
154 <222> LOCATION: (12)..(12)
155 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
157 <220> FEATURE:
158 <221> NAME/KEY: misc_feature
159 <222> LOCATION: (14)..(14)
160 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
162 <220> FEATURE:
163 <221> NAME/KEY: misc_feature
164 <222> LOCATION: (16)..(18)
165 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
167 <400> SEQUENCE: 4
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```
170 1              5                 10                15
173 Xaa Xaa
177 <210> SEQ ID NO: 5
178 <211> LENGTH: 17
179 <212> TYPE: PRT
180 <213> ORGANISM: Pyrococcus furiosus
183 <220> FEATURE:
184 <221> NAME/KEY: misc_feature
185 <222> LOCATION: (1)..(1)
186 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
188 <400> SEQUENCE: 5
```
W--> 190 **Xaa Tyr Asp Ala Val Ile Met Ala Ala Ala Val Val Asp Phe Arg Pro**
```
191 1              5                 10                15
194 Lys
198 <210> SEQ ID NO: 6
199 <211> LENGTH: 24
200 <212> TYPE: PRT
201 <213> ORGANISM: Pyrococcus furiosus
203 <400> SEQUENCE: 6
205 Ala Asp Leu Val Val Gly Asn Thr Leu Glu Ala Phe Gly Ser Glu Glu
206 1              5                 10                15
209 Asn Gln Val Val Leu Ile Gly Arg
```

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Input Set : A:\116-01.txt
Output Set: N:\CRF4\09172004\H957709A.raw

```
210                20
213 <210> SEQ ID NO: 7
214 <211> LENGTH: 17
215 <212> TYPE: PRT
216 <213> ORGANISM: Pyrococcus furiosus
219 <220> FEATURE:
220 <221> NAME/KEY: misc_feature
221 <222> LOCATION: (13)..(13)
222 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
224 <400> SEQUENCE: 7
W--> 226 Gly Ala Met Leu His His Val Lys Leu Ile Tyr Ala Xaa Lys Leu Arg
227 1              5                  10                  15
230 Lys
234 <210> SEQ ID NO: 8
235 <211> LENGTH: 18
236 <212> TYPE: PRT
237 <213> ORGANISM: Pyrococcus furiosus
240 <220> FEATURE:
241 <221> NAME/KEY: misc_feature
242 <222> LOCATION: (15)..(16)
243 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
245 <400> SEQUENCE: 8
W--> 247 Gly Ala Met Leu His His Val Lys Leu Ile Tyr Ala Thr Lys Xaa Xaa
248 1              5                  10                  15
251 Arg Lys
255 <210> SEQ ID NO: 9
256 <211> LENGTH: 13
257 <212> TYPE: PRT
258 <213> ORGANISM: Pyrococcus furiosus
260 <400> SEQUENCE: 9
262 Met Leu His His Val Lys Leu Ile Tyr Ala Thr Lys Leu
263 1              5                  10
266 <210> SEQ ID NO: 10
267 <211> LENGTH: 16
268 <212> TYPE: PRT
269 <213> ORGANISM: Pyrococcus furiosus
272 <220> FEATURE:
273 <221> NAME/KEY: misc_feature
274 <222> LOCATION: (2)..(4)
275 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
277 <220> FEATURE:
278 <221> NAME/KEY: misc_feature
279 <222> LOCATION: (8)..(9)
280 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
282 <400> SEQUENCE: 10
W--> 284 Gly Xaa Xaa Xaa Pro Asp Trp Xaa Xaa Lys Phe Arg Lys Glu Glu Ser
285 1              5                  10                  15
288 <210> SEQ ID NO: 11
289 <211> LENGTH: 17
```

RAW SEQUENCE LISTING   DATE: 09/17/2004
PATENT APPLICATION: **US/08/957,709A**   TIME: 16:04:58

Input Set : **A:\116-01.txt**
Output Set: **N:\CRF4\09172004\H957709A.raw**

```
290 <212> TYPE: PRT
291 <213> ORGANISM: Pyrococcus furiosus
293 <400> SEQUENCE: 11
295 Gly Ala Ile Leu Leu Pro Asp Trp Lys Ile Arg Lys Glu Ile Leu Ile
296 1               5                   10                  15
299 Glu
303 <210> SEQ ID NO: 12
304 <211> LENGTH: 16
305 <212> TYPE: PRT
306 <213> ORGANISM: Pyrococcus furiosus
309 <220> FEATURE:
310 <221> NAME/KEY: misc_feature
311 <222> LOCATION: (1)..(1)
312 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
314 <220> FEATURE:
315 <221> NAME/KEY: misc_feature
316 <222> LOCATION: (9)..(9)
317 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
319 <220> FEATURE:
320 <221> NAME/KEY: misc_feature
321 <222> LOCATION: (13)..(13)
322 <223> OTHER INFORMATION: Xaa can be any naturally occurring amino acid
324 <400> SEQUENCE: 12
```
W--> 326 **Xaa Met His His Val Ile Lys Leu Xaa Tyr Ala Thr Xaa Ser Arg Lys**
```
327 1               5                   10                  15
330 <210> SEQ ID NO: 13
331 <211> LENGTH: 18
332 <212> TYPE: PRT
333 <213> ORGANISM: Pyrococcus furiosus
335 <400> SEQUENCE: 13
337 Met Leu Tyr Leu Val Arg Pro Asp Trp Lys Arg Arg Lys Glu Ile Leu
338 1               5                   10                  15
341 Ile Glu
345 <210> SEQ ID NO: 14
346 <211> LENGTH: 23
347 <212> TYPE: DNA
348 <213> ORGANISM: Artificial
350 <220> FEATURE:
351 <223> OTHER INFORMATION: primer sequence
353 <400> SEQUENCE: 14
354 caycaygaha arythattta cgc                                    23
357 <210> SEQ ID NO: 15
358 <211> LENGTH: 23
359 <212> TYPE: DNA
360 <213> ORGANISM: Artificial
362 <220> FEATURE:
363 <223> OTHER INFORMATION: primer sequence
366 <220> FEATURE:
367 <221> NAME/KEY: misc_feature
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 09/17/2004
PATENT APPLICATION: US/08/957,709A   TIME: 16:04:59

Input Set : A:\116-01.txt
Output Set: N:\CRF4\09172004\H957709A.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos. 1,2,13,14,15
Seq#:2; Xaa Pos. 1,2,3,7,8,10,12,14,15
Seq#:3; Xaa Pos. 1,14,16,21,29,30,32,33,34,35
Seq#:4; Xaa Pos. 1,2,3,7,8,10,12,14,16,17,18
Seq#:5; Xaa Pos. 1
Seq#:7; Xaa Pos. 13
Seq#:8; Xaa Pos. 15,16
Seq#:10; Xaa Pos. 2,3,4,8,9
Seq#:12; Xaa Pos. 1,9,13
Seq#:15; N Pos. 9
Seq#:18; N Pos. 67,68,69,70,71,72,73,74,75,930,931,932,933,1203
Seq#:19; Xaa Pos. 23,24,25,311,401
Seq#:32; N Pos. 15
Seq#:33; N Pos. 15
Seq#:34; N Pos. 15
Seq#:35; N Pos. 15
Seq#:36; N Pos. 20,66
Seq#:37; Xaa Pos. 12,22
Seq#:38; Xaa Pos. 7,22
Seq#:39; Xaa Pos. 7,9
Seq#:41; Xaa Pos. 1
Seq#:42; N Pos. 665,684,686,697,699,700,703,740
Seq#:43; Xaa Pos. 7,9,14,24,26,30,50,52,64,76,78,96,118,121,134,139,153,209
Seq#:43; Xaa Pos. 213,221,228,232,233,234,237,246
Seq#:44; Xaa Pos. 105,129,198,206,215,222,225,228,229,232,233,234
Seq#:45; Xaa Pos. 43,60,110,117,155,162,170,180,195,222,227,229,233,234,235
Seq#:45; Xaa Pos. 243
Seq#:46; Xaa Pos. 23,24,25
Seq#:51; Xaa Pos. 84,85,86,87,88,97,98,99,100,154,155,180,181,182,183,184
Seq#:51; Xaa Pos. 185,287,288,290,311,322,323,324,325,333,348,389,390,417
Seq#:51; Xaa Pos. 434,435,436,437
Seq#:52; Xaa Pos. 104,105,106,107,144,145,173,197,198,294,295,340,368,369
Seq#:52; Xaa Pos. 370,371
Seq#:53; Xaa Pos. 1,3,4,6,7,8,9,11,12,13,14
Seq#:72; Xaa Pos. 1,3,4,6,7,8,10,11,12,13
Seq#:92; Xaa Pos. 167
Seq#:104; Xaa Pos. 2,4,5,6,10,11,13,20,21,22,23,24,25,26,27,28,30,31,32,33
Seq#:104; Xaa Pos. 34,35,41,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60
Seq#:104; Xaa Pos. 61,62,63,65,66,67,72,74,75,78,82,84,87,88,89,95,105,111
Seq#:104; Xaa Pos. 112,117,123,131,133,135,137,140,150,154,157,159,160,162
Seq#:104; Xaa Pos. 163,166,171

Invalid <213> Response:
Use of "Artificial" only as "<213> Organism" response is incomplete,
per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 09/17/2004
PATENT APPLICATION: **US/08/957,709A**   TIME: 16:04:59

Input Set : **A:\116-01.txt**
Output Set: **N:\CRF4\09172004\H957709A.raw**

Seq#:14,15,16,17,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,37,38,39,43
Seq#:44,45,49,50,53,59,60,61,62,63,64,65,72,82,83,84,85,86,87,88,89,104

VERIFICATION SUMMARY   DATE: 09/17/2004
PATENT APPLICATION: **US/08/957,709A**   TIME: 16:04:59

Input Set : **A:\116-01.txt**
Output Set: **N:\CRF4\09172004\H957709A.raw**

```
L:40 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0
L:77 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:119 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0
M:341 Repeated in SeqNo=3
L:169 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0
M:341 Repeated in SeqNo=4
L:190 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:0
L:226 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:0
L:247 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:0
L:284 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:0
L:326 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:0
L:372 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15 after pos.:0
L:423 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18 after pos.:60
M:341 Repeated in SeqNo=18
L:491 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:16
M:341 Repeated in SeqNo=19
L:750 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32 after pos.:0
L:768 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33 after pos.:0
L:786 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:34 after pos.:0
L:804 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:0
L:824 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:0
M:341 Repeated in SeqNo=36
L:850 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0
M:341 Repeated in SeqNo=37
L:879 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0
M:341 Repeated in SeqNo=38
L:908 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:0
L:942 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41 after pos.:0
L:1018 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42 after pos.:660
M:341 Repeated in SeqNo=42
L:1154 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:43 after pos.:0
M:341 Repeated in SeqNo=43
L:1298 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44 after pos.:96
M:341 Repeated in SeqNo=44
L:1427 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45 after pos.:32
M:341 Repeated in SeqNo=45
L:1500 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:46 after pos.:16
L:1651 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51 after pos.:80
M:341 Repeated in SeqNo=51
L:1810 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:52 after pos.:96
M:341 Repeated in SeqNo=52
L:1929 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53 after pos.:0
L:2217 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:72 after pos.:0
L:2579 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:92 after pos.:160
L:3303 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:104 after pos.:0
M:341 Repeated in SeqNo=104
```